

AI, ML and DL

- Unlocking the Jargons

How these relates to human brains?

- ◆ **Artificial Intelligence** copies human behaviour, the way we think, work and function.
- ◆ **Machine Learning** teaches computers to think the way we humans do.
- ◆ **Deep Learning** is a software that mimics the neuron networks in a human brain. It improves on its own with experience and by using historical data.



ARTIFICIAL INTELLIGENCE:

Since the evolution of technology, humans have wanted machines to work on automation without any external guidance. AI falls into three categories:



ARTIFICIAL NARROW INTELLIGENCE (ANI):
ANI or Weak AI is programmed to focus on one narrow task. It can even complete a task in real-time, but they have the ability to only pull information from a specific data set.



ARTIFICIAL GENERAL INTELLIGENCE (AGI):
It is the hypothetical intelligence of a machine that has the capacity to understand any intellectual task that humans can.



ARTIFICIAL SUPER INTELLIGENCE (ASI):
It is the hypothetical AI that just doesn't mimic human intelligence but possesses intelligence far more than the brightest and smartest of human minds.

EXAMPLES OF APPLICATIONS

- Sentimental analysis helps understand customer reactions
- Grammar checking software like Grammarly & ProWritingAid uses AI
- Face, Fingerprint and Voice recognition that enhances our security systems
- RPA automates mundane & repetitive tasks thus reducing workload
- AI's NLP tech allows detection of urgency in text, thereby helping CS teams

ALGORITHMS

Actor-Critic Methods, Multi-Agent Deep Deterministic Policy Gradient (MADDPG), Q-Learning, REINFORCE.



MACHINE LEARNING:



ML systems automatically learn and improve from experience without having to be programmed. It is based on the premise that systems can learn from data, identify patterns, and make decisions with little to no human intervention. ML is the best choice when it comes to analyzing, understanding and identifying patterns in the data.

EXAMPLES OF APPLICATIONS

- Services like Uber & Lyft minimize detours for shared cab rides.
- The 'People You May Know' section on Facebook
- Chatbots are taking the place of a CS exec. With each interaction, it gets smarter and serves better.
- Traffic predictions on Google Maps
- The movie recommendations you get on your Netflix account

ALGORITHMS

Sentiment Analysis, Support Vector Machines, Linear Regression, K-means clustering, Logistic Regression, and more.



DEEP LEARNING:



It mimics the network of neurons in the human brain. If an ML model predicts something wrongly, then the programmer needs to fix it, but in the case of deep learning, it fixes itself. Deep Learning uses many-layered neural networks to solve the hardest problems.

EXAMPLES OF APPLICATIONS

- Self-driving cars are a consequence of deep learning
- IBM's Watson is known for its highly accurate recommendations in cancer treatments
- Language translators
- Providing personalized experiences on ecommerce sites
- Identifying language and speech disorders in children even before kindergarten

ALGORITHMS

Recurrent Neural Networks (RNN), Siamese Networks, Long Short Term Memory Networks (LSTM), Transfer Learning, Convolutional Neural Networks (CNN), Transformer, and more.

MARKET SIZE

The market size of AI is expected to reach **\$733.7 billion by 2027.**



The machine learning market is expected to be **\$47.29 billion by 2027**, growing at a CAGR of 44.9% from 2020 to 2027.



The market size of deep learning will be **\$10.2 billion by 2025**, estimates say.

